

WHAT IS CLAIMED IS:

1. A device for screwing a cap onto the neck of a bottle or similar container, comprising a screwing head  
5 able to move axially along a screwing axis and able to rotate about said axis to transmit said rotation to an organ for gripping the cap, in synchronism with the axial movement of the head, to cause the screwing of the cap onto the bottle, in which said grip organ has a  
10 tubular shape, with an end mouth which is able to receive and grip within it the cap, in which inside said tubular grip organ is mounted in sliding fashion a thruster member, wherein said device comprises means for controlling the axial position of the thruster  
15 member inside the grip organ which are so shaped as to cause a lowering of the thruster member within the grip organ, thereby thrusting it against the cap during at least a time interval between an instant in which the cap bears down onto the bottle, before the start of its  
20 screwing thereon, and an instant that is subsequent to the completion of the screwing operation, when the screwing head rises again, moving away from the cap.
2. A device as claimed in claim 1, wherein said means for controlling the axial position of the  
25 thruster member are able to thrust said thruster member in continuous fashion in the time interval between the two aforesaid instants.
3. A device as claimed in claim 1, wherein said means for controlling the axial position of the  
30 thruster member are able to thrust said thruster member against the cap during a step preceding the start of the screwing operation..
4. A device as claimed in claim 1, wherein said means for controlling the axial position of the

thruster member are able to thrust said thruster member against the cap during the screwing operation.

5. A device as claimed in claim 1, wherein aforesaid means for controlling the axial position of  
5 the thruster member are able to thrust the thruster member against the cap in a step subsequent to the completion of the screwing step.

10 6. A machine using a plurality of devices as claimed in any of the previous claims, with a carrousel mechanism to move each screwing device about a central axis, in which said means for controlling the axial position of the thruster member of each screwing head are constituted by a stationary cam surface set circumferentially about the aforesaid central axis,  
15 which is engaged by a cam following organ associated to the thruster member of each screwing head.

20 7. A machine as claimed in claim 6, wherein said cam surface is constituted by an annular end surface of a cylindrical wall surrounding the aforesaid central axis and having a cylindrical surface bearing a circumferential throat constituting a cam track engaged by a cam following organ associated to each screwing head, in order to determine the axial position of the head during the operating cycle of the machine.

25 8. A method for screwing a cap onto the neck of a bottle or similar container, comprising a screwing head which is movable axially along a screwing axis and able to rotate about said axis to transmit a rotation to an organ for gripping the cap, in synchrony with the axial movement of the screwing cap, to cause the screwing of the cap onto the bottle, in which said grip organ has a tubular conformation, with an end mouth which is able to receive and grip within it the cap and in which within said tubular grip organ is slidably mounted a  
30 thruster member,  
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wherein the axial position of the thruster member inside the grip organ is controlled in such a way as to cause a lowering of the thruster member inside the grip organ, thereby thrusting the thruster  
5 member against the cap at least in a time interval between the instant in which the cap is set down onto the bottle, before starting its screwing thereon, and an instant that is subsequent to the completion of the screwing operation, when the screwing head rises again  
10 moving away from the cap.

9. A method as claimed in claim 8, wherein said thruster member is thrust against the cap to cause a driving of the cap onto the neck of the bottle even before the start of the screwing step.

15 10. A method as claimed in claim 8, wherein said thruster member is pressed against the cap during the screwing step.

11. A method as claimed in claim 8, wherein said thruster member is pressed against the cap during a  
20 step subsequent to the completion of the screwing operation, when the screwing head is already rising again and moving away from the cap screwed on the bottle.